

A NEW VARIETY OF *DODECATHEON PULCHELLUM*  
(PRIMULACEAE)

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ABSTRACT

*Dodecatheon pulchellum* var. *distolum* is proposed for a sparsely glandular or glandular-puberulent taxon from northeastern Wyoming and extreme west central South Dakota. It is most closely related to the more western, densely glandular-puberulent var. *cusickii* of British Columbia south to Oregon eastward across Idaho to western Montana and northwestern Wyoming.

**KEY WORDS:** *Dodecatheon*, *Primulaceae*, Flora of North America

While preparing a treatment of *Dodecatheon* L. (*Primulaceae*) for a forthcoming volume of *Flora of America*, the following undescribed variant of the widespread, western North American species, *D. pulchellum* (Raf.) Merr., was noted.

*Dodecatheon pulchellum* (Raf.) Merr. var. *distolum* Reveal, var. nov.  
TYPE: UNITED STATES. Wyoming, Weston Co.: Black Hills, Black Hills National Forest, Thomson Canyon, about 8.5 air mi NE of Newcastle, in small opening of *Pinus ponderosa* on Paha Sapa limestone, 43°55'57", 104°03'33", T46N, R60W, sec. 33NENE, 5500 ft elev., 4 Jun 1984, H. Marriott 6448, holotype: RM.

*A* var. *cusickii* plantis parce minute glandulosis et glanduloso-puberulis differt.

Plants erect herbaceous perennials, 0.6–3.5(–4) dm tall, sparsely glandular-puberulent and often minutely glandular; *caudex* not obvious

at anthesis, the roots white, without bulblets; *leaves* basal, 2–10 (13) cm long, (0.3) 0.5–2 cm wide, decurrent to base or nearly so, the blades tapering gradually to a non-winged (at least basally) petiole, oblanceolate to elliptic, sparsely glandular-puberulent, the margins usually entire; *inflorescences* 1–10-flowered, the bracts lanceolate, 2–7 mm long, usually minutely glandular at least on margins, the pedicels 0.5–3.5 cm long at anthesis, sparsely and minutely glandular; *flowers* 5-merous, the calyx 4–8 (9) mm long, mostly green, glabrous or more often minutely glandular at least on margins, the tube 1.5–3 mm long, the lobes 3–6 mm, the reflected petals 0.8–1.5 (1.8) cm long, magenta to lavender or rarely white, tube yellow with a thin, wavy, reddish ring; *stamens* 5, the filaments fused into a tube 1–2 (2.5) mm long, yellow, smooth or more often longitudinally wrinkled, the anthers 3.5–6 mm, pollen sacs yellow, the connective maroon; *stigma* not enlarged; *capsule* cylindrical-ovoid, 8–15 mm long, 3–5 mm wide, tan to light brown, often reddish-brown apically, glabrous, valvate.

Syncline shootingstar, var. *distolum* (*distolus* Gr., in pairs, as to the Big Horn Mountains and Black Hills at each end of a syncline that forms Powder River Basin of northeastern Wyoming), is found primarily on limestone gravel to rocky slopes and outcrops on the foothills and low to middle elevations of the Big Horn Mountains, the Black Hills, and around Devils Tower of northeastern Wyoming and west central South Dakota. The plant also occurs on sandstone or granite, and rarely on gypsum; it can be found at much higher elevations in the Big Horn Mountains. For the most part it is a plant of dry places on forest floors but occasionally will be found along streams or near the edges of moist meadows. It is associated primarily with ponderosa pine or with juniper, mountain mahogany, and sagebrush. Occasionally it is found with aspen or even birch. The variety occurs mainly from 3800 to 6400 feet, with some populations known from as high as 9100 feet. The var. *pulchellum* occurs on the Big Horn Mountains mostly above 7000 feet elevation; presently the two varieties have not been found growing in close proximity.

*Dodecatheon pulchellum* var. *distolum* is similar to var. *cusickii* (Greene) Reveal in that both are glandular, with var. *cusickii* densely so on scapes, pedicels and calyx, whereas the new variety is sparsely glandular with the calyx either glabrous or (more often) with the sparse glands scattered over the abaxial surface or confined just to the margins.

Both varieties tend to have glandular-puberulent leaves and yellow pollen sacs, and therefore differ from occasional populations in southeastern Alaska and adjacent Yukon of var. *pulchellum* with purple pollen sacs that have minute glands on the pedicels. The new variety is known from Big Horn, Crook, Johnson, Sheridan and Weston cos., Wyoming, and Custer, Lawrence and Pennington cos., South Dakota. The var. *cusickii* occurs well to the west being found from northeastern Oregon northward to southeastern British Columbia, hence eastward across central and northern Idaho to western Montana. A disjunct population occurs at Birdseye, Fremont County, Wyoming.

**Other specimens examined** (all at RM unless otherwise indicated):

UNITED STATES. **South Dakota**, Custer Co.: Black Hills, ridge E of Hill Canyon near Log Cabin, Jewel Cave National Monument, T4S, R2E, sec. 2, 5350 ft., 14 May 1985, *Marriott 9461*; Black Hills, Lithograph Canyon, Jewel Cave National Monument, 0.25 mi E of Porthole, T4S, R2E, sec 1, 5250 ft., 4 Jun 1985, *Marriott 9559*. Lawrence Co.: Black Hills, Custer Peak, T3N, R3E, 6250-6750 ft, 22 Jun 1953, *Gilly et al. 494*; Black Hills, 1 mi from Hardy Guard Station, 25 Jun 1927, *Hayward 1424*; Black Hills, Box Elder Creek at Benchmark, T3N, R4E, sec. 12, 5020 ft., 15 Jun 1950, *Taylor & Taylor 6966*. Pennington Co.: Black Hills, Needles Trail, Harney Peak, 8 Jul 1927, *Hayward 1935*; foothills near Rapid City, 11 May 1924, *McIntosh 45*; Black Hills, Castle Creek Valley, 1 mi W of Deerfield, 26 Jun 1925, *McIntosh 691*; Black Hills, Black Elk Wilderness Area, 0.2 mi S of Horsethief Lake, T2S, R5E, sec. 11, 5100 ft., 22 May 2000, *Marriott & Mayer 11819*; Black Hills, Reynolds Prairie, T1N, R2E, sec. 13, 6200 ft., 25 May 1956, *Pase 491* (USFS); Black Hills, Tepee Gulch, T1S, R6E, sec. 34, 5000 ft., 26 May 1964, *Thilenius 66* (USFS); Black Hills, Harney Peak, 30 Jun 1911, *Visher 1608*. **Wyoming**, Big Horn Co.: Big Horn Mountains, Cottonwood Canyon, T56N, R93W, sec. 33, 6300 ft., 13 Jul 1979, *B. E. Nelson 5283*; Big Horn Mountains, mouth of Dry Medicine Lodge Canyon and ridge above Medicine Lodge Canyon, T50N, R89W, sec. 9, 5000-5700 ft., 26 May 1980, *Dueholm & Hartman 9497*; Big Horn Mountains, Medicine Lodge Canyon, along Cold Springs Road, ca 8 air mi NE of Hyattville, T50N, R89W, sec. 1, 6400 ft., 26 May 1980, *Dueholm & Hartman 9516*. Crook Co., Black Hills, Sundance, May 1915, *P. Bowman s.n.*; Devils Tower National

Monument, Devils Tower, May 1934, *Giles* 36; Black Hills, South Fork of Reuter Canyon, ca 2 mi N of Sundance, 5700 ft, T52N, R63W, sec. 2, 13 Jun 1996, *Kass* 4573 (BRY, RM); ; Devils Tower National Monument, along a fire trail N of Devils Tower, T53N, R65W, sec. 7, 4250 ft., 29 Apr 1981, *Marriott* 623; Black Hills, Bear Lodge Mountains, Black Hills, E of Bear Lodge Campground, T54N, R62W, sec. 20, 4600 ft., 20 May 1983, *Marriott* 2134; Black Hills, draw between Burnt Hollow and Sourdough creeks near Belle Fourche River, T55N, R64W, sec. 20, 3800 ft elev., 23 May 1983, *H. Marriott* 2181; Black Hills, Bear Lodge Mountains, Bear Lodge Mountains, East Fork of Blacktail Creek, ca 9.4 air mi SE of Hulett, T53N, R64W, sec. 13 and T53N, R63W, sec. 18, 4700 ft., 24 May 1983, *Marriott* 2308; Black Hills, Bear Lodge Mountains, N and W of Reuter Campground, T51N, R63W, sec. 4, 5600 ft, 27 May 1983, *Marriott* 2314; Black Hills, Snider Ranch, upper Corral Creek drainage, T51N, R65W, sec. 10, 4600 ft., 27 May 1983, *Marriott* 2365; Black Hills, Redwater Creek, Queen Ranch, T53N, R62W, sec. 25, 4100 ft., 31 May 1983, *Marriott* 2535; Black Hills, Medicine Lake, T51N R62W S4, 4500 ft., 1 Jun 1983, *Marriott* 2567; Black Hills, Government Valley, T52N, R62W, sec. 5, 4600 ft., 6 Jun 1983, *Marriott* 2591; Sundance Mountain, T51N, R63W, sec. 24, 5300 ft., 28 May 1984, *Marriott* 6400; Black Hills, Inyan Kara Creek drainage off Norris Divide, T49N, R64W, sec. 5, 4400 ft., 7 Jun 1984, *Marriott* 6608; Black Hills, Hain Spring, off Lost Canyon, T49N, R60W, sec. 29, 6300 ft., 12 Jun 1984, *Marriott* 6655; Black Hills, Sand Creek above Spottedtail Gulch, T51N, R60W, sec. 21, 5300 ft., 16 Jun 1984, *Marriott* 6811; Black Hills, Inyan Kara Mountain, T49N, R62W, sec. 19, 5400 ft., 19 Jun 1984, *Marriott* 6869; Black Hills, 7 mi NW of Hulett, 4500 ft, 24 May 1935, *M. Ownbey* 576; Black Hills, Reuters Canyon, 5 mi N of Sundance, 5500, 21 Jun 1950, *C. L. Porter* 5361. Johnson Co.: Powder River Basin, about 10 air mi NNW of Buffalo, T53N, R82W, sec. 31, 4700 ft., 1 Jun 1979, *Dueholm* 6273; Powder River Basin, about 7 air mi SE of Sheridan, T55N, R83W, sec. 23, 4600 ft., 9 Jun 1979, *Dueholm* 6841; Big Horn Mountains, Snow Cave Ridge, T45N, R84W, sec. 21, 8000 ft., 28 Jun 1979, *Hartman* 9786; Big Horn Mountains, Elgin Park, T49N, R83W, sec. 5, 7800 ft., 8 Jun 1980, *B. E. Nelson* 5235b; Big Horn Mountains, rim above Beartrap Meadows, T46N, R84W, sec. 31, 8100 ft elev., 9 Jun 1980, *B. E. Nelson* 5246; Big Horn Mountains, just E of Munkres Pass at the headwaters of Muddy Creek, T48N, R85W, sec. 11, 9400 ft., 8 Jul 1980, *B. E. Nelson* 5996;

Big Horn Mountains, along Merle Creek, S of Sheep Mountain, T49N, R84W, sec. 30, 9000 ft., 10 Jul 1980, *B. E. Nelson 6104*. Sheridan Co.: Big Horn Mountains, about 1 air mi NW of Freeze Out Point, T57N, R88W, sec. 35, 8000 ft elev., 15 Jul 1979, *Hartman 10185*. Washakie Co.: Big Horn Mountains, Rome Hill Road, T46N, R86W, sec. 9, 7200 ft., 27 May 1980, *Dueholm & Hartman 9587*; Big Horn Mountains, Big Trails Stock Trail along Crooked Creek, T44N, R86W, sec. 30, 6600 ft., 22 May 1980, *Hartman & Dueholm 10981*; Big Horn Mountains, Rome Hill, T46N, R86W, sec. 6, 6000 ft., 27 May 1980, *Hartman & Dueholm 11270*; Big Horn Mountains, along old U.S. Hwy 16 in Tensleep Canyon, T48N, R87W, sec. 24, 7300 ft., 16 Jun 1980, *B. E. Nelson 7355*. Weston Co.: Black Hills, along U.S. Hwy 16 W of state line, T44N, R60W, sec. 27, 4450 ft., 16 May 1984, *Marriott 6140*; Black Hills, headwaters of Oil Creek just N of Skull Creek Road, T48N, R61W, sec. 19, 5400 ft elev., 22 May 1984, *Marriott 6185*; Black Hills, W of Wyoming Hwy 116, T48N, R65W, sec. 12, 4600 ft., 25 May 1984, *Marriott 6274*; Black Hills, Cambria Creek drainage NE of Cambria site, T46N, R61W, sec. 20, 4700 ft., 12 Jun 1984, *Marriott 6734*; Black Hills, Stockade Beaver Creek E of Mallo Camp, T47N, R60W, sec. 3, 6200 ft., 13 Jun 1984, *Marriott, 6767*; Black Hills, Black Buttes, on an unnamed butte E of Iron Mountain, T50N, R62W, sec. 26, 5700 ft, 21 Jun 1984, *Marriott 6946*; Black Hills, west side of ridge S of Elk Mountain (USFS Road 818) near Mix Spring, T43N, R60W, sec. 21, 4800 ft., 26 Jun 1984, *Marriott 7160*; Black Hills, Bearlodge Mountains, Bearlodge Campground near Wyoming Hwy 24, T54N, R62W, sec. 20, 4600 ft., 21 May 1989, *Marriott 10944*; Black Hills, Dugout Gulch, T52N, R60W, sec. 19, 4000 ft., 23 May 1989, *Marriott 10977*.

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